Access to Health Care and School Engagement in U.S. School Children

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Statement of the Research Problem

Children in the United States have poorer health outcomes than children in any other economically developed country. The U.S. health ranking is particularly curious, because internationally, there are nearly parallel wealth and health gradients. As gross domestic product rises, so goes a nation's health, yet the United States has had the world's largest economy since the close of the 19th century.

U.S. health improves decade-by-decade, but improvements do not kept pace with those of other economically developed nations (WHO, 1999; WHO, 2009). Children in the United States have poorer health outcomes than children in 37 other countries in the world, including the other countries of the Group of Seven (G7) industrialized nations (Nolte & McKee, 2008; Weitz, 2007). The G7 are the seven nations identified by the Organization for Economic Co-operation and Development (OECD) as the world's largest economies.

Health Disparities and Social Access

The United States began losing ground in its health ranking after the mid-20th century. The Carter Administration created the Healthy People initiative to study and respond to the U.S. decline in international health ranking (U.S. Department of Health, Education, and Welfare, 1979). Healthy People identified health disparities within the United States as a cause of the nation's still-falling health ranking (U.S. Department of Health and Human Services, 2000; 2010).

As a nation's economic growth is predictive of its health improvements, so household income predicts child health. There are predictable child health disparities in the United States along economic lines. Wealth represents access to health-inducing agents such as nutritious foods and safe places for exercise, and limited exposure to disease-inducing agents including carcinogens, threat, and stress (Adler & Ostrove, 1999). As with national wealth and health, however, the relationship between household income and child health is not completely linear. There are health disparities between U.S. groups of children living in household with similar incomes. U.S. children who are Black, Latino, Native American, or Asian non-English-speaking are more apt to incur

illness than are their White or Asian English-speaking income peers (Becker, 2004; HHS; Hughes & Ng, 2003; Williams, 1999).

U.S. child health disparities do not exist on an epidemiologist's dusty spreadsheet, but are as real as a boil, or a fever, or an untreated injury. Health disparities are not the result of inherent differences in populations, but of intractable differences in social access afforded by policies and practices that favor and exclude members of society because of color, creed and history (Farmer, 1999; Halfon & Hochstein, 2002). Social access is among the social determinants of health. The pathways by which individual, group, and population health develops include social and psychological mechanisms, along with behavioral and biological mechanisms (Adler & Ostrove, 1999).

In U.S. society, biomedical health care is widely viewed as a health-inducing agent. The nation's health care system is a patchwork system, but it is very large, and very obvious, leaving a sick child wondering why she cannot go to the doctor's like the other school children. A child's exclusion from the nation's patchwork of health care creates threat and stress that is not experienced by children with access to health care. The threat and stress result from unmet need, and from being left out of society's valued means of health, means set aside for other children society has deemed deserving.

Exclusions from health care might include lack of insurance, but insurance is only valuable when it connects a child to a health care provider and related services. This study looks for a model of access to health care that predicts child health.

Measuring Child Health

Demographers and epidemiologists make international health comparisons on measures of under age-one mortality, under age-five mortality, and life expectancy. WHO suggests, however, that functional ability is a more useful measure for capturing variance in child health in economically developed countries, where there is little variance in mortality; most children live to adulthood (2002). A Nobel laureate in economics, Amartya Sen suggests that societies think in terms of developing children's capabilities (Nussbaum, 2006; Sen, 1999).

Most studies of the relationship between education and health trace causation from education to health. Health disparities increase with age, however, suggesting that for children, causality may be reversed. A literature review by health policy analysts suggests that children in better health achieve better education, and more education, than their less healthy peers (Low, Low, Baumler & Huynh, 2005). The initial beneficiaries of investment in child health improvements are the nation's most vulnerable, its children, but there is a benefit that accrues to the nation's economy across decades of increased productivity, education, and incentives to invest in the future (Bloom & Canning, 2000; Bloom, Canning & Jamison, 2004). Future outcomes are influenced by health mechanisms present in childhood.

Some economists suggest that child health affects school attendance that in turn effects school achievement, adult income, adult health, and the health of the next generation (Case & Paxson, 2006). It may be that childhood health, rather than household income alone, predicts achievement. Healthier children expect to live longer, giving them a greater incentive to invest in developing their skills for their future (Bloom & Canning,

2000). “Healthier children have higher rates of school attendance and improved cognitive development, and a longer life span can make investment in education more attractive” (Bloom, Canning & Jamison, 2004, p. 11).

School absenteeism predicts a repeated grade; repeating a grade predicts dropout. For children with chronic conditions such as asthma, arthritis, ear infections, and seizures, missing more than 10 days in a school year increases the likelihood of not passing the grade with their peers (Dryfoos, 2005).

There is limited research that looks directly at the linkages between access to health care including health care insurance enrollment, and child functioning including school attendance (Dryfoos, 2005; Schwarz & Lui, 2000). The implications are far reaching, because social arrangements that support children’s health and capabilities also support individual, community, and national capabilities (Nussbaum, 2007). This study measures U.S. child health with an omnibus measure of health status for all ages, and a measure of healthy weight for children ages 11 – 17. The study measures functionality with an omnibus measure for all ages, overall functioning as compared to same-age children, and two specific measures of functionality for school age children, vigorous exercise and participation in an organized activity outside school. The study has two measures of developing capabilities, school engagement as evidence by absenteeism related to illness or injury and whether the child has repeated a grade.

Research Background and Hypotheses

Selection of the study’s care variables was informed by primary care’s emphasis on age-appropriate preventive protocols and condition-appropriate first response to need (Cwikel, 2006), and by economists’ view of preventable emergency care as cost inefficient inferior goods, not normal health care goods (Currie & Gruber, 1996). This study used four care variables as measures of access to health care: (1) whether the child had a health need in the past year for which care was delayed or not received, (2) whether the child had a personal provider, such as a doctor, nurse practitioner, or physician's assistant, who knew the child well and was familiar with the child’s history, (3) whether the child had a place where the child went when sick, or where the caregiver went for advice about the child’s health (not the emergency room), and (4) whether the child had at least one preventive care visits in the past year.

This study used an insurance variable, whether the child had continuous health care coverage over the past year, as a measure of access to health care. The selection of the insurance variable was informed by research indicating that disadvantages of public insurance are ameliorated by continuous coverage, which supports a patient’s establishing with a primary care provider (Currie & Gruber, 1996; Lave, Keane, Lin, Ricci, Amersbach & LaVallee, 1998; Sommers, 2005).

The study has six contextual variables, whether the child has a special health care need (CSHCN), household income, age, sex, and race or ethnic group, and the mother’s level of education. The contextual variables are those identified by epidemiologists, economists and pediatricians as social determinants of health. Even CSHCN is considered a function of physical and social environments, including health care system characteristics, as well as of individual genetic endowment and predisposing characteristics (Newacheck, Kim Blumberg & Rising, 2008).

The research question for this study asks whether lack of access to health care predicts unsatisfactory child health and functioning, including school engagement, controlling for other social determinants of health. The study hypothesizes that controlling for contextual characteristics, including household income, children without access to health care are:

1. Less likely to be categorized as having excellent or very good health status,
2. More likely to be underweight,
3. More likely to be overweight or obese,
4. More likely to be categorized as limited or prevented in ability to do the things most children of the same age can do,
5. Less likely to engage in physical activity, for at least 20 minutes that is vigorous enough to make her or him breathe hard and sweat,
6. Less likely to participate in an organized activity outside school,
7. More likely to miss school because of illness or injury, and
8. More likely to repeat a grade,

than are children with access to healthcare.

Methodology

Data and Sample

This is a quantitative study, a non-experimental, observational design with secondary data from the 2007 National Survey of Children's Health (NSCH) (Blumberg et al., 2007). NSCH includes health care and health information, and includes measures of normal childhood activity. The NSCH survey was informed by WHO's definition of health as functionality.

NSCH is a nationally representative set of cross-sectional child health data, collected April 2007 – July 2008. The NSCH used random-digit dialing to sample one adult caregiver for each of n = 91,642 children from the 50 states and the District of Columbia. Interviewers conducted computer-assisted surveys with questions in 11 domains including child demographics, child health, child functioning, and access to health care.

Data on n = 83,139 children, ages birth – 17 years, were available for regressing the model of access to health care on child health status, including n = 73,643 children categorized with excellent or very good health status and n = 9,496 categorized in a health status below excellent or very good.

Data on n = 28,434 children, ages 11 – 17 years, were available for regressing the model of access to health care on healthy and low BMI, with n = 26,479 children identified as having a healthy BMI and n = 1,955 children identified as being underweight.

Data on n = 34,805 children, ages 11 – 17 years, were available for regressing the model of access to health care on healthy and high BMI, with n = 24,530 children identified as having a healthy BMI and n = 10,275 children identified as being overweight.

Data on 83,071 children, ages birth – 17 years, were available for regressing the model of access to health care on child functioning, with 78,414 children identified as functioning as well as their age peers, and 4,657 children identified as not functioning as their age peers.

Data on 57,161 children, ages 6 – 17 years, were available for regressing the model of access to health care on child exercise, with 52,195 children identified as participating in vigorous exercise in a week, and 4,966 children identified as not exercising vigorously in a week.

Data on n = 57,588 children, ages 6 – 17 years, were available for regressing the model of access to health care on child's non-participation in an organized activity outside school, with n = 50,000 children identified as participating in organized activities outside school, and n = 7,588 children identified as not participating in an organized activity outside school.

Data on n = 57,095 children, ages 6 – 17 years, were available for regressing the model of access to health care on level of children's school absence for illness or injury, with n = 46,614 children identified as being absent from school for illness or injury five or fewer days in a year and n = 10,481 children identified as being absent from school for illness or injury six or more days in a year.

Data on n = 57,561 children, ages 6 – 17 years, were available for regressing the model of access to health care on child's being at grade level in school, with n = 52,953 children identified as never having repeating a grade and n = 4,608 children identified as repeating any grade since kindergarten.

Data Analysis

This study used hierarchical binary logistic regression, to test whether nested models of contextual and health care variables predicted school engagement, as an aspect of child health. The results are reported as odds ratios of the worse of two discrete health outcomes.

Results

Multivariate analyses indicate statistically significant models of access to health care for supporting seven of the eight hypotheses. There was not a statistically significant model for healthy weight compared to underweight.

Each model indicated that the contextual variables were strong predictors of child health, which was consistent with the literature that informed selection of the contextual variables as social determinants of child health. The exception was that child's sex was not a significant predictor of the omnibus health status outcome, or of participation in an organized activity outside school.

The insurance variable was statistically significant in two models, for health status and for participation in an organized activity outside school. There were at least two statistically significant care variables in each of the models, as detailed following.

Child Health Status below Excellent or Very Good was predicted by three care variables: unmet health care need, not having a personal provider, and not having a usual place for care, as well as by whether the child had year-round insurance (see Table 1). The multiplied odds ratio for the three care variables was 3.03, indicating that children with unmet health care need, without a personal provider, and without a usual place for care, were three times more likely than children with access to health care to have a health status their caregiver categorized as only poor, fair, or good.

High Body Mass Index was predicted by two care variables, unmet health care need and not having a preventive care visit. The multiplied odds ratio for the two care variables was 1.23, indicating that children with unmet health care need and without preventive care, were 23% more likely than children with access to health care to be overweight or obese.

Functioning below Age Peers was predicted by two care variables, unmet health care need and not having a usual place for care (see Table 2). The multiplied odds ratio for the two care variables was 2.79, indicating that children with unmet health care need and without a usual place for care, were nearly three times more likely than children with access to health care to function below their age peers.

No Vigorous Exercise in a Week was predicted by three care variables, not having a personal provider, not having a usual place for care, and not having preventive care (see Table 3). The multiplied odds ratio for the three care variables was 2.47, indicating that school-age children without a personal provider, a usual place for care, or preventive care were nearly two and a half times more likely than children with access to health care, to not exercise hard enough each week that they would breathe hard or sweat .

No Organized Activity outside School was predicted by three care variables, not having a personal provider, a usual place for care, and preventive care. The multiplied odds ratio for the three care variables was 2.50, indicating that school-age children without a personal provider, a usual place for care, or preventive care were two and a half times more likely than children with access to health care, to not participate in an organized activity outside school.

School Days Missed for Illness or Injury was predicted by unmet health care need. The odds ratio of high absenteeism with unmet need was 2.2, indicated that children with unmet health care need were more than twice as likely as children with needs met on time to miss school for illness or injury. Conversely, however, not having a personal provider and not having a usual place for care, predicted fewer school days missed (see Table 4).

Repeating a Grade in school was predicted by two care variables, unmet health care need and not having a usual place for care (see Table 5). The multiplied odds ratio for the two care variables was 1.65, indicating that children with unmet health care need and without a usual place for care were 65% more likely than children with access to health care to have repeated a grade in school.

Discussion

These findings indicate that access to health care plays a statistically significant role in U.S. child health, controlling for other social determinants of health that are known to be powerful predictors or child health.

The finding that uninsured children were less likely than insured children to participate in an organized activity outside school is consistent with a qualitative study in which parents said they were afraid to let their uninsured child participate in activities such as biking and roller skating for fear of injuries and medical care costs. The study further indicated that organizations were fearful of allowing uninsured children to participate in organized sports (Lave, Keane, Lin, Ricci, Amersbach & LaVallee, 1998). This indicates more far reaching health effects of being uninsured than as a barrier to care; in this instance lack of health care insurance was also a barrier to participation in the community.

Children of all ages with a health care need that was not met in a timely way were twice as likely as their peers with timely care, to function below their age peers. School-age children with unmet need were twice as likely as peer with need met on time to miss five or more days of school for illness or injury. The strength of this variable underscores the need for timely care throughout childhood.

Further study is needed to examine why the effect of not having a personal provider or a usual place for care was not in the anticipated direction, predicting fewer days missed for illness or injury. It may be that sick or injured children without a provider or a place for care attend school anyway. It may be that their families look to school personnel and the school to play a health role, in lieu of a health service provider and a place for care.

Utility for Social Work Practice

Social exclusions decrease children's capabilities to "be" and to "do", to survive and do what is normal for children their age in their society (Nussbaum, 2006; Sen, 1999). There are implications for the health of children, and of a society, when that society excludes its children from its prized means for promoting health.

School non-attendance is often framed as a problem that exists within the student, but this study suggests that limited access to health care plays a role in children's school engagement. The focus of truancy research is often on the child's choice, or the family's choice, for the child to be in school. This study views school engagement as an outcome related to limited access to society's health services. The freedoms to exercise, participate, and attend are secured by social arrangements that support childhood capabilities (Sen, 2002). Healthy children survive and do what is normal for children their age.

Schools are the nation's near-universal provider of services to children, but schools are asked to provide educational services for children without services that support their being in their seats, healthy enough to do their work. To address concerns about the nation's education outcomes, it will behoove us to support schools by improving access to health care for their students.

There are multiple factors that influence whether a child accesses health care, so there are many points at which a social worker can intervene. This study informs social work advocacy at the micro level, with findings about the value to child health of in-time primary care. The unacceptable alternative is for children to suffer until conditions become severe enough for emergency care. Advocacy is particularly essential for children without year-round insurance, and for children who are publicly insured but live in communities where few providers accept public insurance.

At the school level, this study found that unmet health care need predicted school absence for illness or injury. School social workers participate in truancy prevention, but must also be aware that excused absences may result from unmet health care need. The study also found that having a usual place for care and having a personal provider predicted more school absence for illness or injury, suggesting that sick and injured children may be attending school. Further study is needed, but school social workers should be aware of unmet health care needs for children who are attending school.

In the U.S., schools are the near-universal child service providers. Many communities place a large burden for child well-being on the schools, and schools certainly play an important role in the health ecology. Yet schools and school services do not substitute for health care. School social workers can make school communities aware of student health care needs, and where needed, participate in development of school-based health services in ways that are reasoned, funded, and coordinated with community health services (Dryfoos & Maguire, 2002).

At the community level, social work advocacy can inform decisions for developing primary care. Community and hospital boards have a voice in developing health care goods and services. Social workers can use this study to support their advocacy for primary health care services, to support the development of capabilities by a community's children and by the community.

At the policy level, this study has implications for the next renewal of the Elementary and Secondary Education Act, currently entitled No Child Left Behind (PL 107-110). The Act has placed undue burden on local schools, with no provision for supporting the health and readiness of school children to learn. Framing health-related readiness to learn as foundational to schooling involves municipalities, communities, counties, state and federal policy support of child health.

There is ongoing debate over a "reform" of the health care system. Seldom, in that debate, do we hear that children in the United States have poorer health outcomes than children in any other economically developed country. What can be done, is to improve children's access to health care. When compromises are made, this study commends decision makers to focus on connecting children with on-time care for health care needs, and insurance as needed for that connection, to support the functioning and capabilities of the nation's children and communities, and to stem the tide of declining health relative to the nation's vast economic resources.

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Table 1. Health Status below Excellent or Very Good

	Step 1				Step 2			
Contextual Variables	B	(SE)	OR	*p*	B	(SE)	OR	*p*
No Special Health Care Need								
CSHCN	1.70	(0.03)	5.47	***	1.68	(0.03)	5.39	***
Age 0 - 5 years								
12 - 17 years	0.21	(0.03)	1.23	***	0.18	(0.03)	1.19	***
Ethnic Group: White non-Hispanic								
Hispanic	1.11	(0.03)	3.03	***	1.05	(0.03)	2.85	***
Black non-Hispanic	0.57	(0.04)	1.77	***	0.55	(0.04)	1.73	***
Multi/other non-Hispanic	0.41	(0.04)	1.51	***	0.39	(0.04)	1.47	***
Income: $\geq$ 401%								
301 - 400%	0.26	(0.04)	1.30	***	0.25	(0.04)	1.28	***
201 - 300%	0.50	(0.04)	1.65	***	0.45	(0.04)	1.56	***
101 - 200%	0.85	(0.04)	2.35	***	0.76	(0.04)	2.14	***
0 - 100%	1.21	(0.04)	3.34	***	1.10	(0.04)	2.99	***
Mother's ed: Post-high school								
High school or equivalent	0.48	(0.03)	1.62	***	0.48	(0.03)	1.62	***
Less than high school	0.99	(0.04)	2.69	***	0.95	(0.04)	2.59	***
Access to Health Care Variables								
Unmet need					0.50	(0.04)	1.65	***
No personal doctor or nurse					0.18	(0.04)	1.20	***
No usual place for care					0.43	(0.05)	1.53	***
Uninsured					0.18	(0.03)	1.20	***

Model Fit	Step 1	Step 2
Nagelkerke R^2	.228	.235
Block chi-square (*df*)		365 (5) ***
Model chi-square (*df*)	10,240 (13) ***	10,605 (18) ***

Notes: Reference groups justified left. CSHCN = children with special health care needs Income = % federal poverty level
*$p < .05$ **$p < .01$ ***$p < .001$

Table 2. Functioning below Age Peers

	Step 1				Step 2			
Contextual Variables	B	(SE)	OR	*p*	B	(SE)	OR	*p*
No special health care need								
CSHCN	3.21	(0.04)	24.75	***	3.16	(0.04)	23.54	***
Sex: Male								
Female	-0.13	(0.03)	0.88	***	-0.13	(0.03)	0.88	***
Age 0 - 5 years								
12 - 17 years	0.09	(0.04)	1.10	*	0.08	(0.05)	1.08	
Ethnic Group: White non-Hispanic								
Black non-Hispanic	0.31	(0.05)	1.37	***	0.30	(0.05)	1.34	***
Multi/other non-Hispanic	0.34	(0.06)	1.40	***	0.30	(0.06)	1.35	***
Income: $\geq$ 401%								
301 - 400%	0.24	(0.06)	1.28	***	0.22	(0.06)	1.25	***
201 - 300%	0.47	(0.05)	1.59	***	0.41	(0.05)	1.50	***
101 - 200%	0.67	(0.05)	1.95	***	0.58	(0.05)	1.78	***
0 - 100%	1.03	(0.06)	2.79	***	0.92	(0.06)	2.51	***
Mother's ed: Post-high school								
High school or equivalent	0.23	(0.04)	1.26	***	0.25	(0.04)	1.29	***
Less than high school	0.42	(0.06)	1.51	***	0.43	(0.06)	1.54	***
Access to Health Care Variables								
Unmet need					0.77	(0.05)	2.16	***
No usual place for care					0.26	(0.08)	1.29	**

Model Fit	Step 1	Step 2
Nagelkerke R^2	.323	.331
Block chi-square (*df*)		258 (5) ***
Model chi-square (*df*)	10,002 (13) ***	10,260 (18) ***

Notes: Reference groups justified left. CSHCN = children with special health care needs Income = % federal poverty level
*$p < .05$ **$p < .01$ ***$p < .001$

Table 3. No Vigorous Exercise in a Week

	Step 1				Step 2			
Contextual Variables	B	(SE)	OR	*p*	B	(SE)	OR	*p*
No special health care need								
CSHCN	0.47	(0.03)	1.60	***	0.53	(0.04)	1.70	***
Sex: Male								
Female	0.49	(0.03)	1.63	***	0.50	(0.03)	1.06	***
Age 6 - 11 years								
12 - 17 years	1.03	(0.04)	2.80	***	1.02	(0.04)	2.78	***
Ethnic Group: White non-Hispanic								
Hispanic	0.71	(0.04)	2.03	***	0.67	(0.04)	1.96	***
Black non-Hispanic	0.44	(0.05)	1.55	***	0.48	(0.05)	1.62	***
Income: ≥ 401%								
201 - 300%	0.14	(0.05)	1.15	**	0.09	(0.05)	1.10	*
101 - 200%	0.41	(0.05)	1.50	***	0.34	(0.05)	1.41	***
0 - 100%	0.68	(0.05)	1.97	***	0.60	(0.05)	1.83	***
Mother's ed: Post-high school								
High school or equivalent	0.36	(0.04)	1.43	***	0.35	(0.04)	1.41	***
Less than high school	0.76	(0.05)	2.14	***	0.71	(0.05)	2.02	***
Access to Health Care Variables								
No personal doctor or nurse					0.21	(0.06)	1.23	***
No usual place for care					0.22	(0.06)	1.24	***
No preventive care visit					0.48	(0.04)	1.62	***
Model Fit	Step 1				Step 2			
Nagelkerke R^2	.117				.115			
Block chi-square (*df*)					223 (5)***			
Model chi-square (*df*)	2,782 (12)***				3,005 (17)***			

Notes: Reference groups justified left. CSHCN = children with special health care needs Income = % federal poverty level
*$p < .05$ **$p < .01$ ***$p < .001$

Table 4. School Absence for Illness or Injury

	Step One				Step Two			
Contextual Variables	B	(SE)	OR	*p*	B	(SE)	OR	*p*
No special health care need								
CSHCN	1.02	(0.02)	2.79	***	0.96	(0.02)	2.60	***
Sex: Male								
Female	0.18	(0.02)	1.19	***	0.17	(0.02)	1.19	***
Age 6 - 11 years								
12 - 17 years	0.10	(0.02)	1.11	***	0.10	(0.02)	1.11	***
Ethnic Group: White non-Hispanic								
Hispanic	-0.35	(0.04)	0.70	***	-0.35	(0.04)	0.70	***
Black non-Hispanic	-0.58	(0.04)	0.56	***	-0.59	(0.04)	0.56	***
Multi/other non-Hispanic	-0.12	(0.04)	0.89	**	-0.14	(0.04)	0.87	**
Income: $\geq$ 401%								
301 - 400%	0.18	(0.03)	1.19	***	0.17	(0.03)	1.18	***
201 - 300%	0.30	(0.03)	1.35	***	0.27	(0.03)	1.31	***
101 - 200%	0.47	(0.03)	1.60	***	0.41	(0.04)	1.51	***
0 - 100%	0.72	(0.04)	2.05	***	0.67	(0.04)	1.95	***
Mother's ed: Post-high school								
High school or equivalent	0.08	(0.03)	1.09	**	0.10	(0.03)	1.11	***
Less than high school	0.12	(0.04)	1.13	**	0.17	(0.05)	1.18	***
Access to Health Care Variables								
Unmet need					0.79	(0.04)	2.20	***
No personal doctor or nurse					-0.18	(0.05)	0.84	***
No usual place for care					-0.14	(0.06)	0.87	
Model Fit	Step 1				Step 2			
Nagelkerke R^2	.071				.082			
Block chi-square (*df*)					403 (5)***			
Model chi-square (*df*)	2,559 (12)***				2,962 (17) ***			

Notes: Reference groups justified left. CSHCN = children with special health care needs Income = % federal poverty level
*$p < .05$ **$p < .01$ ***$p < .001$

Table 5. Repeated Grade

	Step 1				Step 2		
Contextual Variables	B	(SE)	OR	*p*	B	(SE)	OR
No special health care need							
CSHCN	0.85	(0.03)	2.33	***	0.82	(0.03)	2.28
Sex: Male							
Female	-0.46	(0.03)	0.63	***	-0.46	(0.03)	0.63
Age 6 - 11 years							
12 - 17 years	0.54	(0.03)	1.72	***	0.54	(0.03)	1.71
Ethnic Group: White non-Hispanic							
Black non-Hispanic	0.59	(0.05)	1.80	***	0.58	(0.05)	1.78
Multi/other non-Hispanic	0.13	(0.06)	1.13	*	0.11	(0.06)	1.12
Income: $\geq$ 401%							
301 - 400%	0.23	(0.06)	1.25	***	0.22	(0.06)	1.24
201 - 300%	0.60	(0.05)	1.83	***	0.58	(0.05)	1.79
101 - 200%	0.88	(0.05)	2.42	***	0.84	(0.05)	2.33
0 - 100%	1.22	(0.05)	3.38	***	1.17	(0.06)	3.23
Mother's ed: Post-high school							
High school or equivalent	0.50	(0.04)	1.65	***	0.50	(0.04)	1.65
Less than high school	0.94	(0.05)	2.55	***	0.93	(0.05)	2.53
Access to Health Care Variables							
Unmet need					0.31	(0.06)	1.36
No usual place for care					0.19	(0.07)	1.21

Model Fit	Step 1	Step 2
Nagelkerke R^2	.128	.130
Block chi-square (*df*)		46 (5)***
Model chi-square (*df*)	3,235 (12)***	3,280 (17)***

Notes: Reference groups justified left. CSHCN = children with special health care needs
Income = % federal poverty level
*$p < .05$ **$p < .01$ ***$p < .001$